

CLAIMS:

1. A data recording method of modulating the power of a laser beam in accordance with a pulse pattern, projecting the laser beam onto a write-once type optical recording medium to form a record mark and recording data in the write-once type optical recording medium, wherein the pulse pattern is constituted by a pattern in which the power of the laser beam is set to a recording power P_w within a first period and a second period and the power of the laser beam is set to an intermediate power P_m lower than the recording power P_w within a third period provided between the first period and the second period, the length of the first period and the levels of the recording power P_w and the intermediate power P_m being set to satisfy $1.7T \leq t_{top2}$ and $1.4 \leq P_w/P_m$ where T is a length corresponding to one cycle of a reference pulse and t_{top2} is the length of the first period.
2. A data recording method in according with Claim 1, wherein the length of the first period is set to satisfy $1.7T \leq t_{top2} \leq 2.0T$ and the recording power P_w and the intermediate power P_m are set to satisfy $1.4 \leq P_w/P_m \leq 1.62$.
3. A data recording method in according with Claim 1, wherein the linear recording velocity is set equal to or higher than 14 m/sec during recording of data in the write-once type optical recording medium.
4. A data recording method in according with Claim 2, wherein the linear recording velocity is set equal to or higher than 14 m/sec during recording of data in the write-once type optical recording medium.

5. A data recording method in according with Claim 1, wherein record marks including 5T marks are formed in the write-once type optical recording medium during recording of data therein.
- 5 6. A data recording method in according with Claim 2, record marks including 5T marks are formed in the write-once type optical recording medium during recording of data therein.
7. A data recording apparatus for modulating the power of a laser
10 beam in accordance with a pulse pattern, projecting the laser beam onto a write-once type optical recording medium to form a record mark and recording data in the write-once type optical recording medium, wherein the pulse pattern is constituted by a pattern in which the power of the laser beam is set to a recording power P_w within a first period and a
15 second period and the power of the laser beam is set to an intermediate power P_m lower than the recording power P_w within a third period provided between the first period and the second period, the length of the first period and the levels of the recording power P_w and the intermediate power P_m being set to satisfy $1.7T \leq t_{top2}$ and $1.4 \leq P_w/P_m$ where T is a
20 length corresponding to one cycle of a reference pulse and t_{top2} is the length of the first period.
8. A data recording apparatus in accordance with Claim 7, wherein the length of the first period is set to satisfy $1.7T \leq t_{top2} \leq 2.0T$ and the
25 recording power P_w and the intermediate power P_m are set to satisfy $1.4 \leq P_w/P_m \leq 1.62$.
9. A write-once type optical recording medium in which data can be

recorded by modulating the power of a laser beam in accordance with a pulse pattern and projecting the laser beam thereonto, the write-once type optical recording medium being recorded with data for setting recording conditions necessary for setting the pulse pattern to a pattern
5 in which the power of the laser beam is set to a recording power P_w within a first period and a second period and the power of the laser beam is set to an intermediate power P_m lower than the recording power P_w within a third period provided between the first period and the second period, the length of the first period and the levels of the recording power
10 P_w and the intermediate power P_m being set to satisfy $1.7T \leq t_{top}2$ and $1.4 \leq P_w/P_m$ where T is a length corresponding to one cycle of a reference pulse and $t_{top}2$ is the length of the first period.

10. A write-once type optical recording medium in accordance with
15 Claim 9, wherein the length of the first period and the levels of the recording power P_w and the intermediate power P_m are set to satisfy $1.7T \leq t_{top}2$ and $1.4 \leq P_w/P_m$.

11. A write-once type optical recording medium in accordance with
20 Claim 9 which includes a light transmittable substrate, a dummy substrate and a recording layer provided between the light transmittable substrate and the dummy substrate and containing an organic dye.

12. A write-once type optical recording medium in accordance with
25 Claim 10 which includes a light transmittable substrate, a dummy substrate and a recording layer provided between the light transmittable substrate and the dummy substrate and containing an organic dye.